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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,440	02/17/2004	Sumio Kawai	OOCL-152 (6MHA-03S0555P1)	6170

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EXAMINER	
AGGARWAL, YOGESH K	
ART UNIT	**PAPER NUMBER**
2622	
MAIL DATE	**DELIVERY MODE**
12/01/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/780,440	KAWAI ET AL.	
	Examiner	Art Unit	
	YOGESH K. AGGARWAL	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 August 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Arguments

1. Applicant's arguments filed 08/14/2009 have been fully considered but they are not persuasive.

Examiner's response:

2. Applicant argues that neither of the references teach vibrating the optical element and a control circuit which changes a frequency of the periodic drive signal, to thereby cause the optical element to be vibrated at a plurality of frequencies that are close to at least two resonance frequencies different in order and successively applied. The Examiner respectfully disagrees. As taught in Paragraph 50 of Yoshida, fig. 4 is one example of the pulse waveform of the drive voltage 14. Paragraph 56 further teaches that the value of the drive frequency in relation to the resonance frequency is not only settable at values shown in figure 4 but could be any values between 0.3xfr <fd <1.5xfr. Therefore any values of drive frequencies between this range are successively applied to vibrate the optical element.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 2 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. (US PG-PUB # 20010026112) in view of Shinbori et al. (US Patent # 5,781,236).

[Claim 1]

Yoshida teaches a photographing device provided with a dust removing mechanism comprising

a photographing optical system lens L coupled with a drive member 28 as shown in figure 1) which forms an optical image of an object;

a photoelectric, conversion element which converts an optical image of an object to an electric signal (a camera as taught in Paragraph 15 has a photoelectric conversion element); a piezoelectric element (26, figure 1) provided at a peripheral portion of the optical element (piezoelectric element is provided at a peripheral portion of a the lens L coupled to a driving element); a drive circuit (14) which supplies a periodic drive signal to the piezoelectric element (26) to vibrate the piezoelectric element, thereby vibrating the optical element (Paragraphs 50 and 51, figure 4 teaches expansion and contraction frequencies close to resonance frequencies) and a control circuit (controller 22, figure 1) which changes a frequency of the periodic drive signal, to thereby cause the optical element to be vibrated at a plurality of frequencies close to at least two resonance frequencies different in order and successively applied (Paragraph 82, 50 and 56, drive frequency in relation to the resonance frequency is not only settable at values shown in figure 4 but could be any values between 0.3xfr <fd <1.5xfr. Therefore any values of drive frequencies between this range are successively applied to vibrate the optical element).

Yoshida fails to teach an optical element arranged between the photographing optical system and the photoelectric conversion element in such a manner as to seal the photoelectric conversion element. However Shinbori teaches a holding member 113 for holding the optical low pass filter plates 11-13 (figure 10) in such a manner so as to seal the image sensing package 106. The member 108 for turning the optical low pass filter is capable of being provided with an excellent sealed structure by inserting the protruding cylindrical portions 110 and 114 (figure

11), thereby making it possible to prevent the penetration of dust and intrusion of light resulting from leakage (col. 12 lines 19-51, figures 10 and 11).

Therefore taking the combined teachings of Yoshida and Shinbori, it would be obvious to one skilled in the art at the time of the invention to have been motivated to have an optical element arranged between the photographing optical system and the photoelectric conversion element in such a manner as to seal the photoelectric conversion element as taught in Shinbori into the system of Yoshida in order to provide with an excellent sealed structure thereby making it possible to prevent the penetration of dust and intrusion of light resulting from leakage as taught in Shinbori as taught in Shinbori (col. 12 lines 47-51).

[Claim 2]

Yoshida in view of Shinbori teach all the limitations of claim 1. Yoshida further wherein the control circuit controls the frequency of the periodic drive signal to vibrate the optical element first at a frequency close to a low-order resonance frequency for a predetermined time and then at another frequency close to a high-order resonance frequency for another predetermined time (Paragraphs 50, 51, 82 and figure 4 teaches expansion and contraction frequencies close to resonance frequencies).

[Claim 13]

Yoshida in view of Shinbori teach all the limitations of claim 1. Shinbori further teaches an optical low-pass filter plates 11-13 (figure 10) arranged in front of the photoelectric conversion element 105, wherein the optical element (108) is arranged to seal the optical low-pass filter in cooperation with the photoelectric conversion element (See figures 10 and 11).

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOGESH K. AGGARWAL whose telephone number is (571)272-7360. The examiner can normally be reached on M-F 9:00AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571)-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Yogesh K Aggarwal/
Examiner, Art Unit 2622